

### **Amendments to the Specification**

*Please amend the Specification by amending the paragraph beginning on page 10, line 3 (first full paragraph):*

This Raman probe 8 was designed to maximize the collection of tissue Raman signals while reducing the interference of Rayleigh scattered light, fiber fluorescence, and silica Raman signals. The probe 8 as illustrated in Figure 2 consisted of two arms. An illumination arm 6 incorporated a collimating lens 42, band-pass filter ( $785\pm 2.5$  nm) 34, and focusing lens 24, delivering the laser light onto the skin surface 9 with a spot size of 3.5 mm. A collection arm comprising a fiber bundle 10 with collimating lens 15 and refocusing lens 17 and a holographic notch plus filter 30 (OD > 6.0 at 785 nm, Kaiser) was used for collecting Raman emissions. To enhance the detection of the inherently weak Raman signals, we packed as many fibers 44 into the fiber bundle 10 as allowed by the CCD height (6.9 mm). The fiber bundle 10 consists of  $58\times 100$ - $\mu\text{m}$  fibers arranged in a circular shape at the input end 46 of the probe 8 and a linear array at the output end 48 which was connected to the spectrograph's entrance. Another 50- $\mu\text{m}$  fiber was placed at the centre of the output linear array and split out of the bundle to terminate with a SMA connector for wavelength calibration. At the circular end 46 the fibers were packed into a 1.6 mm diameter area, which also defined the measurement spot size at the skin surface 9.

*Please amend the Specification by amending the paragraph beginning on page 17, line 11 (second paragraph):*

A high-performance BP filter (in the preferred embodiment,  $785\pm 2.5$  nm) 122 passes through the laser light and filters out the background Raman and fluorescence signals generated

inside the illumination fiber 130 between the diode laser 150 and the filter adapter 120. The filtered laser light is refocused into the illumination fiber 132 in the probing fiber bundle assembly 110. Because this part of the illumination fiber 132 is short, the generated background Raman and fluorescence from the fiber is small. Nevertheless, the distal end 114 of the illumination fiber 132 is coated with a SP filter 160 to further reduce these background signals. The induced Raman signal from the tissue 170 is picked up by collection fibers 180 in the probing fiber bundle assembly 110. LP filter coatings 190 are applied to the distal end of these fibers 180 to block the back-scattered laser light from entering the probe 110. At the proximal end 112 of the probing fiber bundle assembly 110, these collection fibers 180 ~~fibers 180~~ are packed into a round bundle 184 and connected to the filter adapter 120. A notch filter (in the preferred embodiment, OD > 6.0 at 785 nm, Kaiser) 126 is used to further block the laser wavelengths and allow the Raman signals to pass through. The Raman signals are refocused by a focusing lens 127 into the round-to-parabolic linear array fiber bundle 140. At the entrance of the spectrometer 152, these collection fibers 140 are aligned along a parabolic line 154 to correct for image aberration of the spectrograph to achieve better spectral resolution and higher S/N ratio in a fashion similar to the skin Raman probe described in the '948 patent.

*Please amend the Specification by amending the paragraph beginning on page 20, line 19 (second full paragraph):*

The fiber bundle 110 consists of 58 100- $\mu$ m fibers. It is packed into circular shape and terminated with an SMA connector to the filter adapter 120 ~~122~~. At the spectrometer 152 end, the 58 fibers ~~40~~ are aligned along a curve 154 formed by laser drilling of a stainless steel

cylinder piece, the shape of which corresponds directly to the horizontal displacement shown in Figure 4 and expressed as a parabolic curve in Eq. (1) above. This curve serves to correct for image aberration of the spectrograph 52 to achieve better spectral resolution and higher S/N ratio in a fashion similar to the skin Raman probe described in the '948 patent.